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ABSTRACT

The history of the evaluation of non-English written materials through the use of various mathematical formulae is reviewed. This process began in 1939 with Tharp's work in French, and has continued until the present. Formulas have been developed for Spanish, Russian, German, Hebrew, Chinese, and Vietnamese. In Europe, modifications of the Flesch Reading Ease Formula were adapted to French, Spanish, German, and Dutch, while different methods were used to evaluate many other languages. More recently, in Denmark, Austria, and other European countries, techniques have been developed that involve the examination of factors other than linguistic ones (i.e., the visual presentation of the material and the contents of the text. In the United States and Canada recent research has concentrated on the evaluation of the readability of minority-language texts such as French in Canada, and Spanish and Vietnamese in the United States. (JL)

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The Evaluation and Use of Non-English Text in the United States and Abroad

A Brief History of Readability Research

George Klare (1974, 1984) tells us that much of the early research on instruments for evaluating non-English text was conducted in the United States for the benefit of English- speaking students studying additional languages.

This process began with Tharp's work in French in 1939 and has continued until the present time. At least seven formulas or their variations have been developed for Spanish text (Crawford, 1984; Garcia, 1977; Gilliam, Peña, and Mountain, 1980; Patterson, 1972; Spaulding, 1951; Thonis, 1976; Vari-Cartier, 1981) as well as instruments for Russian (Rock, 1970), German (Walters, 1966), Hebrew(Nashon, 1957), Chinese (Yang, 1971), and Vietnamese (Nguyen & Henkin, 1985).

The earliest readability instruments developed in Europe were based on modifications of the Flesch Reading Ease Formula (1950). Starting in 1958, it was adapted to French (Kandel and Moles, 1958; De Landsheere, 1963), Spanish (Fernández Huerta, 1959), German (De Landsheere, 1970), and Dutch (Douma, 1960; Brouwer, 1963).

Intensive research on more original measures began on the European continent in the early 1960's. Notable among the early researchers was C.H. Björnsson in Stockholm, Sweden who abandoned the regression equation in favor of an additive formula

and used it to evaluate the readability of newspapers in eleven languages (Bjornsson, 1983). He called it Lix, short for läsbarhetsindex, readability index, in Swedish. Bamberger and Vanecek (1982) in Austria elaborated on this technique for the German language by adding additional linguistic factors. In Denmark Florander and Jansen (1966) adapted Lix for use with Danish text, using it as one of three components for evaluating Danish teaching materials.

Additional research was conducted in Germany (Nestler, 1977; Dickes and Steiwer, 1977), Holland (van Hauwermeiren, 1972; Zondervan, van Steen, and Gunneweg, 1976), France (Henry, 1973 and Richaudeau, 1972), and Spain (López Rodríguez, 1981, 1982; Rodríguez Diéguez, 1983).

More Recent Investigations

What has been going on in recent years? While my information is not all-inclusive, I have been able to up-date my research (Rabin, 1988) on several parts of the world.

Let's start with one of the closest countries to this conference, Denmark.

In Denmark, as I mentioned previously, researchers see readability measurement as the interaction of three components, the linguistic, represented by Lix (Jansen, 1987); the visual, which includes typography, layout, paper and print; and what Danish researchers refer to as "the contents of the text, " defined as the reader's personal interest in the contents of the text. These

three components relate to the three levels of readers: beginners or disabled readers, transitional readers, and those able to choose text solely on the basis of content. Since 1970, all Danish teaching materials, all children's books, and many books for young people and adults have been evaluated through the efforts of the Danish Institute for Educational Research headed by Dr. Mogens Jansen.

In 1989 the Institute published a report entitled Special Education in Denmark - with particular Emphasis on Reading Disabilities (Gamby, Glaesel, Hansen, Jansen et al., 1989). Readability measurement, as such, is not mentioned specifically. What is discussed, however, is the use of what is termed "easy literature," i.e.,reading materials with low readability, to guarantee that every pupil in the class has something to read during the time set aside for individualized silent reading in class, a practice which begins in Denmark at age eight or nine.

Statistics (op. cit., p. 31) demonstrate that from 1952 to 1982 the total number of "easy" school books published in Denmark increased from 149 to 895 or six - fold and the total number of all low readability books, including fiction and nonfiction, went from 297 to 3,184 - over ten times the original number. Danish researchers see the availability of a range of reading materials as the reason behind the large consumption of voluntary reading matter. Unfortunately, a general tightening of financial resources for the schools in recent years has made it difficult

to continue the type of individualized instruction needed by the disabled reader. More recently, the Ministry of Education has been reconsidering this situation as a bit of false economy.

Denmark, incidentally, has initiated an identification card for the use of severely disabled readers. Card holders have only to show this card in places where they need assistance in reading or filling out forms to get the help which they need with a minimal amount of embarrassment.

Moving south, Austrians are continuing their efforts to assure that student textbooks are of the best possible quality in every way. The Institute for Textbook Research in Vienna has at its head Dr. Richard Bamberger as President, or Chairman, and Dr. Erich Vanecek as Director. Bamberger and Vanecek are best known for their volume on the evaluation of German language textual materials published in 1984 Lesen - Verstehen - Lernen - Schrieben. Die Schwierigkeitsstufen von Texten in deutscher Sprache. (Reading - Understanding - Learning - Writing. The Difficulty Levels of Texts in the German Language.) One of the problems that researchers at the Institute have noticed is that because of the rapid explosion of information in the sciences and technology, authors and publishers have had a tendency to include too many facts in the typical textbook. This has resulted in what the members of the Institute characterize as an over - terse and abstract style of writing in many textbooks. Their investigations show that many textbooks are two or three levels above the grade

level for which they are intended. Institute literature suggests that there is a connection between this over-burdening of students and their experiences of failure and/or indifference toward knowledge and education. All of us may gain from the work being done in Austria since the development of an international bibliography on textbook research is also in progress.

Spending just another minute on the European continent, we look at Spain. One of the newest readability formulas for the Spanish language is the result of the research of Dr. José Luís Rodríguez-Diéguez (1983) of the University of Salamanca. Rodríguez- Diéguez added 8 variables to the 26 studied by López-Rodríguez (1981) at the University of Valencia in 1981 and came up with a 12 factor instrument. Research there is on-going.

Moving to the New World, Canadian researchers have been producing a formidable amount of data on the measurement of the French language as spoken by French Canadians plus the nature of the French language in general.

During the 1981 - 82 school year, Dr. Gilles Fortier of the University of Quebec at Montreal set out to determine whether the difficulty levels of French language texts published in Quebec would measure the same or differently if the Gougenheim word list used by Georges Henry in France were replaced with a modern North American French secondary school word list which Fortier had compiled in 1979 in the Montreal area schools (Fortier, May 1982). Fortier found that there was not enough difference between

the results obtained from the two formulas to account for the linguistic and socio-cultural differences between the French spoken in France and that spoken in Quebec.

Alain Desrochers of the University of Ottawa has been studying approaches to evaluating the comprehension of French language vocabulary other than by the use of formulas (Desrochers, Locmelis, and Seguin, April 1988). Included in the annotated bibliograpy which he and two of his colleagues have compiled is information on the graphic characteristics of French words, on their sounds, their morphological characteristics, word frequency, etc.

Drs. Edward Rowe and Allan Pavio (1981) have, for a number of years, been investigating the effects of such factors as noun imagery, frequency, and meaningfulness on verbal discrimination. Dr. Pavio, who is at the University of Western Ontario, has worked in both French and English in his investigations.

In my search for French language materials earmarked for Canadians, I found Communication - Jeunesse, a non-profit organization funded by the Canadian Minister of Cultural Affairs and the Canadian Council for the Arts. Founded in 1972, the primary goal of this group is to upgrade the quality and selection of books written in French by Quebec writers and published or co-published in Quebec. Republications and translations of works from English Canada are also eligible. Selections are not evaluated for readability level. According to

the organization's literature, age groups suggested depend on the reading skills of individual readers.

We return, finally, to the United States. Although we were the first to become interested in the evaluation of non-English text, our purposes have changed in recent years. Thanks to the influx of cultural groups from Latin America and other parts of the world, we face a time when we may be as multilingual as the European continent. Research on readability evaluation and the development of appropriate educational materials is no longer confined to the needs of English-speaking students studying other languages. Of greater concern is the development of suitable reading materials for students who arrive in our schools with little or no English proficiency who must be taught at least partially in their native tongue until they become functional in the second language.

Dr. Allan Crawford's readability formula was developed in 1984 as part of a research project funded by the United States Department of Education (Crawford, March 1984). Crawford has also co-authored with Rosalinda Barrera a Spanish language reading series for grades K - 12 (Barrera and Crawford, 1987) for use in North American classrooms.

Dr. Joanna Fountain, a librarian at Southwestern University in Georgetown, Texas has recently put a Spanish readability formula on computer (Fountain,1989). It is based on the formula developed by Seth Spaulding almost 40 years ago, which Fountain, in her

research, found to be reliable for primary level reading materials. She uses it in her capacity as a consultant to U.S. book companies publishing reading materials for Hispanic students. Dr. Fountain's father, Tomás E. Fountain, is the author of a writer's manual in Spanish entitled Cómo Preparar Materiales Sencillos para Lectores Inexpertos (1974), in English How to Prepare Simple Materials for Poor Readers.

Enough has been published for Spanish speaking bilinguals in the United States that an annotated bibliography of publications and library holdings was published in 1985 by Doris Cruger Dale.

Another large group entering our schools are the Asian refugees. A readability formula for Vietnamese (Nguyen and Henkin, 1982). has also been developed for use with the reading materials of this cultural group who are now living in the United States. The fear of its developers is that reading capacity in this language will deteriorate as members of the group acculturate.

Conclusion

I have focused mainly on the evaluation of written materials in languages other than English through the use of various types of mathematical formulae. This does not mean that there are not other formal and informal ways of matching the reader to the text. In many instances where mathematical formulae could not be adapted to the language, cloze procedure (Taylor, 1953) have been used. Examples of this are Persian (Derakshani, 1980) and Japanese (Sukeyori, 1957). Often, Dr. George Klare, now emeritus

professor at Ohio University, has been called upon to assist.

I leave the discussion of other approaches to the evaluation of reading materials around the world to my colleagues.

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